DOCUMENT RESUME

ED 191 124 CS 503 028

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TITLE An Analysis of Differences and Communication Patterns in Competitive and Cooperative Decision-Making Groups.
PUB DATE May 80
NOTE 36p.; Paper presented at the Annual Meeting of the International Communication Association (30th, Acapulco, Mexico, May 18-23, 1980).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adults; *Communication (Thought Transfer); Communication Research; Comparative Analysis; *Competition; *Cooperation; *Decision Making; *Decision Making Skills; *Group Dynamics; Research

ABSTRACT

Based on existing theory and research on cooperation and competition and on process studies of group decision making, a two-part study was conducted on the communication patterns in four groups of college students. In the first part of the study groups one and three were induced to behave competitively and groups two and four were induced to behave cooperatively. It was hypothesized that the competitive groups and the cooperative groups would differ in the ways the members perceived their group's level of competition and in their satisfaction with the decision making process and product. It was found that the two groups given competitive inducements had significantly higher competition and lower satisfaction than did the groups given cooperative inducements. The second part of the study examined the patterns of communication unique to two of the groups--those displaying the highest and the lowest levels of competition (groups one and two respectively). The analysis yielded patterns of decision making communication unique to each group: (1) group one's communication was characterized by highly probable sequences of disagreement messages and few probable agreement messages; (2) group two's communication patterns consisted of highly probable sequences of decision development and probable agreement/support messages throughout the group interaction. (FL)

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AN ANALYSIS OF DIFFERENCES AND COMMUNICATION PATTERNS IN COMPETITIVE AND COOPERATIVE DECISION-MAKING GROUPS

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Paper presented in the Interpersonal and Small Group Communication Division, ICA, Acapulco, 1980.

CS503028

Group decision-making is the process of coordinating people's thoughts and feelings in time and space so that conjoint behavior is possible. The process can be a destructive effort in which participants feel loss as a result, or a constructive experience that rewards all participants.

This study examines a variable which has been suggested as a primary influence upon the course decision-making may take, namely competition (e.g., Deutsch, 1969a). The study investigates the decision-making communication in four groups, two given competition inducing assignments and two given cooperation inducing assignments. Differences between groups are assessed and a profile of the patterns of decision-making communication generated by the most and least competitive group is created through lag sequential analysis (see, e.g., Sackett, 1978).

The paper first presents a brief discussion of group decision making and competition, then explicates the methods used in the study including development of the instruments, and ANOVA and lag sequential analyses; finally, results are presented and their implications are discussed.

Decision-making Groups

Decision-making and problem solving groups have been studied for decades (e.g., Bales, 1950; Bales & Strodtbeck, 1951; Fisher, 1970; Kelley & Thibaut, 1954; Kirkpatrick, 1976; Scheidel & Crowell, 1964; Tuckman, 1965; Weiss, Hop & Patterson, 1973). An especially important group of studies in this genre

have taken a "process" orientation and focused on the sequence of communicative events from problem identification to solution or decision. These studies are often descriptive and seek patterns in group communication (see, e.g., Crowell & Scheidel, 1961; Ellis & Fisher, 1975; Hawes & Foley, 1976; Krueger, 1979; Stech, 1979; Swinth & Tuggle, 1971). Though process studies are few, they fill an important gap in small group research. Process studies examine the interconnected sequence of communication as it occurs over the life spans of groups, thus exploring the interaction over time. Hawes and Foley (1976), for example, studied "talk embedded in time" (p. 237).

Such an approach provides a full picture of group decision-making. It can also show similarities and differences between groups, not only in terms of "between group" versus "within group" scale scores, but in comparing overall decision-making patterns. Bochner suggests the importance of looking at large behavioral units, such as sequences, and at context in order to explain behavior. In Bochner's (1978) synthesis of Gregory Bateson's approach to social science he writes,

> In order to classify, it is necessary to contextualize, which is why Bateson implores us to look for explanations in the ever larger units rather than in the sorts of microscopic reductions that constitute explanations in the nonclassifying, non-distinguishing world of physical things. Whatever has meaning for us, has meaning for us by virtue of being placed into a larger context [p. 13].

The influence of context on decision-making has been a recurrent issue in group literature (e.g., Deutsch, 1969a; Gouran, 1973; Druckman, 1971; Kirkpatrick, Davis & Robertson,

1976). One essential contextual factor thought to mediate the nature of the decision-making process is the degree of competitiveness or cooperativeness of the enterprise (Deutsch, 1969a, 1969b; Rubin & Brown, 1975).

Cooperation vs. Competition

The differences between competitive and cooperative processes have been extensively explored (see, e.g., Deutsch's papers on social conflict theory, 1949, 1962, 1969a, 1969b, 1973; Rubin, 1971; Rubin & Brown, 1975; and Steinfatt & Miller's discussion of the game theoretic model, 1974). Deutsch (1969a) defines competition as "an opposition in the goals of the interdependent parties such that the probability of goal attainment for one decreases as the probability for the other increases" (p. 8). After competitive conflict members are dissatisfied and feel a sense of loss. The process is often destructive. In cooperative problem solving on the other hand, "A conflict can be viewed as a common problem in which the conflicting parties have the joint interest of reaching a mutually satisfactory solution" (Deutsch, 1969a). Participants feel a sense of gain as a result of cooperative conflict; the process is constructive (Deutsch, 1969a).

In studying the characteristics of cooperative task groups Deutsch (1973) found they display more effective intermember communication, acceptance and attention, friendliness, satisfaction with the group and the solution, helpfulness, coordination of effort, feeling of agreement and similarity in ideas, and higher productivity than competitive groups. These

findings are supported in a wealth of studies of individuals and groups (Back, 1951; Berkowitz, 1957; Gerard, 1953; Gottheil, 1955; Grossack, 1954; Levy, 1953; Mintz, 1951; Mizuhara & Tamari, 1952; Raven & Eachus, 1963; Thomas, 1957).

Competitive task groups, in contrast, are more likely to show greater lack of communication or misleading communication, suspicion, negative responses, sensitivity to differences, conflict, and escalation of conflict than cooperative groups (Deutsch, 1973).

Rubin and Brown (1975) in examining motivational orientation (MO) and its effect on bargaining behavior write, "a cooperative MO tends to lead to more effective bargaining than an individualistic, and especially a competitive MO . . ." (pp. 198-199). The cooperative MO yields more effective group functioning and greater satisfaction (Rubin & Brown, 1975).

The literature explored above suggests some of the behavioral differences to be expected between groups, e.g., more effective communication, agreement, and productivity in cooperative than competitive groups. We do not know, however, how these behaviors are ordered into patterns of communication in such groups. Previous process studies have examined group behavior over time in a more general sense, without the group differentiations used and examined here. Ellis and Fisher (1975), for example, studied the nature of conflict as a small group communication process. They used a Markov analysis in examining four classroom groups and found three phases of conflict characterized as interpersonal conflict, confrontation

and substantive conflict. The study is based on Fisher's earlier (1970, 1974) decision emergence model identifying four phases: orientation, conflict, emergence, and reinforcement.

The present study builds on past theory and research on cooperation and competition, process studies of group decision-making. Two separate analyses are conducted on the communication in four groups. Groups I and III are induced to behave competitively, and Groups II and IV are induced to behave cooperatively. The dual analyses represent an effort to identify the verbal correlates of the cooperative and competitive orientations. This design addresses a central concern of communication research, that of discovering the "message linkages" influencing group process (Mortensen, 1970).

The hypotheses investigated in Analysis A are that the competitive groups (I and III), and the cooperative groups (II and IV) will differ in the ways the members perceive their group's level of competition, and in their satisfaction with the process and product. This analysis is primarily a check on the manipulation used to induce cooperation and competition. The literature reviewed suggests that the groups receiving the competitive inducement (explained below) will perceive more competition and satisfaction than the groups receiving the cooperative inducement.

The research questions addressed through Analysis B are: What is the nature of the patterns of communication in the highest and lowest competitive groups? Do the categories of decision-making show contingency relationships? Do the patterns of communication explain or inform the variation resultant from

the competitive and cooperative inducements in the groups?

METHOD

Subjects

Data were collected on two separate occasions. On the first, twenty-eight students at a western university enrolled in an undergraduate communication course were randomly assigned to two task groups. Each group met separately for approximately one half hour. Both groups were given the task of creating a model of group conflict; each group was given a different incentive designed to induce either intragroup competition or cooperation. The incentive is based on that used in Deutsch's (1973) group study in which competition and cooperation were induced by varying the grading procedure. In Deutsch's competitive group, "each individual's contribution to the group's discussion and group product would be compared with the contributions of each of the other group members, and the best contributor would get an A, the next best a B and so on" (p. 25). In the cooperative group, "every person in the group would get the same grade . . ." (p. 25).

In the present study Group I, a high competition group, was told their model would be evaluated and the group would be awarded up to 750 points toward their course grade on the basis of the evaluation. The points were to be allocated by the group to each member in proportion to his/her contribution to the task. The person contributing the most would receive the highest reward; the person contributing the least would receive the

least reward. The group could not award the same number of points to each member.

Group II, a high cooperation group, was told their model would not be evaluated and would not influence their course grade. An equal number of points were actually awarded to each participant; members were debriefed when group sessions were completed. Both group sessions were videotaped and observed by the experimenter and three research assistants.

On the second occasion, 15 students from the same western university, but enrolled in a different undergraduate communication course were randomly assigned to two task groups. Both groups were given the task of creating a model of communication. Group III received a competition inducement. The group was told their model would be evaluated and the group would be awarded up to 100 points to be distributed to the group on the basis of task contribution as in Group I.

Group IV received a cooperation inducement. The group was told their model would not be evaluated. Again, as in Group II, equal points were awarded to all. These two groups were also videotaped and observed.

Instrument A

A Likert type scale was administered to all group members after task time elapsed. Six semantic differential items comprised two subscales designed to assess the effectiveness of competition and cooperation inducements by measuring perceived competition and group satisfaction. The items are simple and direct. Two questions assess competition: (1) Was your group

more cooperative or competitive? (2) Did the members of your group work more as a unit or as individuals? Four questions assess the groups' satisfaction with the group and the product: (1) How satisfied are you with the model your group created? (2) How satisfied are you with the way the group made decisions? (3) How satisfied are you with the way your group was controlled? (4) Would you like to work with these same people again? The full instrument is reported in Table 1).

Internal consistency of the scale was assessed by computing coefficient alpha. Alpha is an estimate of reliability based on the average correlation among test items (Nunnally, 1967). Coefficient alpha for instrument A is .84, indicating high internal consistency.

Analysis A

Scale responses from each group were compared using a subjects nested within groups and groups nested within treatments ANOVA design (see Anderson & Ager, 1978). The error term is the pooled subjects within groups mean square and the groups mean square. This error term has greater power than the groups mean square. The pooling procedure assumes that the groups within treatments effect is not significant. This test was conducted with a .25 significance level to reduce the probability of Type II errors (Bozivich, Bancroft & Hartley, 1956). The groups within treatment effect was not significant on either the competition or the satisfaction measures. Thus, the inducement check was made using the pooled error term.

Instrument B

Content of the tapes from two groups was transcribed and then categorized into components of decision-making. The coding schema is a composite of several communication category systems (e.g., Bales, 1950; Ellis & Fisher, 1975; Fisher, 1970; Gottman, 1979; Gottman, Markman & Notarius, 1977). The main purpose of this instrument was to tap the decision-making communication in the two groups, including an exploration of patterns in the sequences of communication. It was expected that the communication sequences would differ between the cooperative and the competitive groups. The literature reviewed indicates three primary areas of difference: agreement, productivity and communication effectiveness (Deutsch, 1973; Rubin & Brown, 1975).

The underlying assumptions of the category system are, therefore, the system will code group decision-making communication, especially in terms of agreement, productivity, and general communication effectiveness, defined by Deutsch (1973) as verbalized ideas, member attentiveness, acceptance and receptivity to ideas. Ellis and Fisher's (1975) category system forms a foundation for coding decision-making. Their system is based on Fisher's earlier work (1970) and also reflects many of Bales' IPA (1950) categories. Instrument B is presented in Table 2, and the parallels among Ellis and Fisher (1975) and the present category system are displayed in Table 3.

Insert Tables 2 and 3 about here.

Categories 1) Proposal, 2) Extension, 5) Seeks (information), 6) Gives (information) and 7) summarizes are directly related to the decision-making process and examine the groups' attempts to be productive by looking at information exchange (categories 5, 6), solutions to problems (1), the development of solutions (2), and pulling things together toward solution development (7). Categories 3) Agreement and 4) Disagreement are both task and socio-emotional categories; they tap concensus and support behaviors. These two categories encompass Ellis and Fisher's agreement, favor, and disagreement, disfavor categories. It was not desirable to make the finer distinctions Ellis and Fisher do.

Category 8) Metacommunication examines the group "process" and indicates the members' focus upon their own behavior. Metacommunication is thought to be representative of more mature, effective group behavior (Gottman, Markman & Notarius, 1977; Gottman, 1979). Gottman's (1979) Couples Interaction Scoring System (CISS) designed to examine the differences between "clinic" and "normal" couples' communication is the source of categories 7) Summarizes and 8) Metacommunication. CISS also includes categories for agreement, disagreement, problem solving and information exchange as does the present system.

Message fragments were coded, where possible, into one of the nine categories, or omitted. Ellis et al.'s Ambiguous bivalued and Ambiguous matter of fact categories are not used in this system. It was felt their inclusion would increase the number of categories to unwieldy size without adding

substantially to the analysis. Messages were coded on their primary thrust including ambiguous or double message speeches.

Thus Instrument B includes generally exhaustive and mutually exclusive categories for coding decision-making and for discriminating between competitive and cooperative group communication processes.

Analysis B

The category system functions as a tool by identifying key decisioning behaviors, and facilitating analysis of the patterns in which they occur within the decision-making process. The unit of behavior categorized is the message: a speech by an individual until interrupted by another individual. This unit is comparable to one frequently used in small group and interaction research (e.g., Ellis & Fisher, 1975; Rogers & Farace, 1975).

All messages in the highest and lowest competitive groups (I and II) were coded yielding 642 messages. Each group was coded by a separate trained coder. A pairwise act by act intercoder reliability estimate (Guetzkow, 1950) was calculated on 19 percent (122) of the messages. The accuracy with which messages were coded is estimated from Guetzkow's (1950) formula. The theoretical proportion of agreement (P) is first calculated, then the obtained proportion of agreement (P'). From these parameters the lower limit of the theoretical correctness of classification (p) is estimated. In this study p = .76, indicating the two coders were in substantial agreement in coding the nine categories of the system. Guetzkow states

the relationship between overall and category reliability, "agreement between coders in category-sets involving more than five categories is largely determined by the probability of both coders selecting the correct category" (pp. 51-52).

Coded messages were subjected to a lag sequential analysis in order to identify patterns of decision-making communication over the groups' life spans (see e.g., Bakeman, 1978; Sackett, 1978, 1979 for fuller discussions of lag sequential analysis). Lag sequential analysis determines the number of times a category of behavior follows (matches) a chosen behavior (criterion) at various behavior steps in a sequence. The number of behavior steps between the match and criterion are called lags (Sackett, 1978).

In this study each behavior category in the coding system alternately served as the criterion, and the frequency with which all other categories followed or matched at lag steps 1-9 was calculated. The probability of a category matching the criterion at a particular lag step was tested for statistical significance by applying the binomial test to the difference between observed and expected lag probabilities using the formula taken from Sackett (1978):

$$Z = \frac{P_{OBSERVED} - P_{EXPECTED}}{SD_{EXPECTED}}$$

where

$$SD = \frac{P_{EXP} \cdot 1-P_{EXP}}{N_{TOTAL\ CRITERION}}$$

To indicate a significant difference ($p < .05$) Z must equal or exceed $\pm$ 1.96. A negative Z means an inhibitory dependency, while a positive Z indicates an excitatory dependency. The formula: $CI = P_{EXP} \pm (1.96 \cdot SD)$ yields the upper and lower confidence points of the variability about the expected probability.

One of the most informative strategies for reporting lag analysis results is to create lag profiles "by plotting graphs of the observed probabilities and confidence bands against lag for any particular matching behavior and criterion [Sackett, 1978, p. 7]." Lag profiles yield information about the relationships among messages in the communication sequence. In a contingent relationship the occurrence of one behavior is dependent upon the occurrence of another. Contingency is represented by the appearance of match behavior at frequencies above chance.

To determine whether the multiple event sequences or patterns identified in the lag analysis occur above chance levels, the probability of a pattern's occurrence is calculated. The frequency of occurrence of an n event sequence (e.g., a,b,c) is obtained and compared with the occurrence of all n event sequences beginning with the same initial event (in this case, a). The significance of difference between observed and expected probabilities is based on the Z test (Sackett, 1979).

The final phase of the analysis tests for stationarity of patterns, i.e., their constancy over time. The frequencies of the probable patterns in a group are calculated for the first

and last half of the messages, then compared in a chi-square test. A significant chi-square ($p < .05$) indicates nonstationarity, while a nonsignificant chi-square shows the patterns to be constant over time.

The lag analysis tells us, first of all, which categories occur most frequently in the different groups. Beyond this rather static data, the analysis yields information about the group processes, the ways the groups order the communication sequences. The messages are first collapsed into the nine decision-making categories, then the contiguity relationships among categories are explored, i.e., the probability of one category following another is generalized over the life-span of the group. This analysis helps identify the most likely message patterns occurring in each group, the probabilities of occurrence of those patterns, and whether they are consistent over the groups' life spans.

According to the literature discussed, we expect Group II to have more agreement messages than Group I, and more productive and effective communication. We know little for certain about the sequencing of messages which would satisfy the last two criteria, but we can speculate, again on the basis of the literature, that Group II will show more metacommunication, information exchange, and development of decision proposals into a final solution than Group I. It is thus expected that Group II will have more instances of agreement following other categories, more seeking and giving information interacts (two contiguous messages), and more proposals followed by extension and summarizing than Group I.

RESULTS

ANOVA

The competitive groups (I and III) were significantly different from the cooperative groups (II and IV) on both the competition and satisfaction scales ($p < .005$). Results indicate the inducements to competition and cooperation affected the groups in the predicted manner. F ratios are reported in Table 4.

Insert Table 4 about here.

Lag Sequential Analysis

Lag profiles using each of the nine categories as criterion, and all categories as matches were plotted over nine lags. This process yielded 81 profiles for each group. Only those profiles showing significant fluctuations of behaviors (outside of the confidence intervals), based on more than 15 messages, and providing the best description of group decision-making were incorporated into the discussion. For Groups I and II the most informative profiles were those using category 1: Proposal, 2: Extension, 4: Disagreement, and 6: Gives Information as criteria.

The profiles for a particular criterion in a given group show the observed probability of occurrence of the nine match behaviors (categories 1-9) against the criterion over nine lags. The observed or conditional matching probabilities at each lag,

indicated by points on graphs, are plotted against the 95% confidence interval, which is different for each match behavior. The observed probabilities lying within each confidence interval occur at chance frequencies. Those points above the confidence interval indicate a significant excitation of the match behavior; the points below indicate a significant depression of the match behavior. Those categories showing the strongest excitation and the observed probabilities following a particular criterion are summarized in Tables 5 and 6 for Groups I and II respectively. The 95% confidence intervals for each match within each group are reported in Table 7.

Insert Tables 5-7 about here.

The significant patterns, those occurring with probabilities above chance, were primarily two message sequences (interacts) comprised of the criterion and lag one match. This finding is supportive of previous research using Markov chain analysis which suggests that human communication is best represented by first order chains (Ellis & Fisher, 1975; Hawes & Foley, 1976; Krueger, 1979). For Group I the highly probable interacts are 1-1, 4-4, 6-6; for Group II they are 1-3, 2-2, 4-1, 4-6, and 6-6. Other probable patterns consist of the criterion, a chance or random message, and a highly probable match at a later lag. These patterns are available in Tables 5 and 6. There were no significantly probable sequences of three or more messages.

The stationarity test indicates the patterns are stable over time, with the exception of the 6-6 and 2-2 interacts. The 6-6 pattern shows a significant increase ($p < .05$) in the second half of Group II's meeting, and the 2-2 pattern shows a significant decline ($p < .05$), although both patterns were relatively frequent throughout the group meeting.

DISCUSSION

The ANOVA results confirm the hypotheses of differences between the competitive groups and the cooperative groups on competition and satisfaction scores. Group I had the highest competition scores and least satisfaction, while Group II had the highest cooperation and satisfaction. Creating a competitive environment in Group I apparently influenced the participants' perceptions of the entire experience in a negative way. This group in fact never completed the task of creating a model, members were unable to agree on how to proceed. The decision-making process appeared to continually start over without progressing. Group II on the other hand chose a direction early in the meeting and developed and refined the idea over time. The group often laughed and joked, complimented itself on its progress and appeared highly satisfied with the process and product.

The differences between groups based on participants' perceptions of the experience are reflected in differences in the patterns of decision-making communication discerned from the lag sequential analysis. In Group I when Proposal is the

criterion the most probable subsequent behavior is counter-proposal (lag 1) followed by Extension. Later in the lag sequence Agreement and Disagreement (lags 7 and 8) occur at above chance probabilities. The proposal or counterproposal was either accepted or rejected after a brief message exchange. With Extension as criterion, all categories match with chance probability for lags 1 and 2. Then Disagreement and Agreement are highly probable at lag 3. The criterion, Disagreement, is followed by more Disagreement, then Proposal or Gives Information (lag 3). Group I has more Disagreement occurring above chance levels after Extension and Disagreement than the other group. The Disagreement-Disagreement interact may reflect the high competition and may have stimulated the low satisfaction scores. When Gives New Information is criterion, "Gives" follows at lag one, then a series of information seeking occurs (lags 2-4).

In Group II with Proposal as criterion the most probable behavior at lag 1 is an Agreement/support message. Counter-proposal or Extension follows, then either Extension or Disagreement. Interestingly with Extension as criterion, several Extension messages follow at lags 1, 2, 3, 5 and 6. This illustrated Group II's process of development of a proposal. Group members build on each other's ideas. After an Extension message is given, another can be expected. A similar process occurs with Gives (new) Information as Criterion, a Gives Information message is likely to follow. In Group II, Disagreement as criterion is followed by Proposal or Gives Information

at lag 1, Agreement at lag 2 and Gives Information at lag 3. This configuration is similar to the one following Disagreement in Group I with the important exception that in Group I the lag 1 match is Disagreement. This may indicate conflict or antagonism. The most frequently occurring category in Group II is Agreement/support. This message type occurs with above chance probability as matches for Proposal and Disagreement at several lags. In addition Agreement messages appear often throughout the group's entire communication sequence, comprising almost 50% of the messages. The pervasiveness of Agreement/support coincides with high cooperation and satisfaction scores for Group II.

Group I's patterns of decision-making communication showed Disagreement following Disagreement, and no significant Agreement/support in the first two lags following any criterion. There also were no sequences of Extension and only one interact of Gives Information. The patterns do not reflect the development of a decision, or many supportive messages which would facilitate or encourage development of a line of thought.

Most patterns were stable over time in both groups. However, in Group II the Extension-Extension interact decreased in the second half and the Gives-Gives interact increased. This suggests a tapering off of proposal development although Extension interacts are still frequent in the final half. The increase in information giving is difficult to account for, but may reflect increased attention to procedural matters, e.g., "Time is running out," and "Someone should get this down on paper."

In summary the results support the expectations derived from the literature. Group II, the cooperative group, had substantially more agreement and support than Group I. Group II finished the task and was highly satisfied with the group process and product. Group I's productivity was considerably lower; this group did not complete the task, and made little progress toward even developing a direction. Group I showed little satisfaction with its process or product.

Group II showed more effective communication overall than Group I. Group II gave considerable information reflected in double message sequences of "Gives;" Group I showed much information seeking in sequence with little giving. Group II had several extension or building sequences, while Group I had few.

Contrary to expectations Group I had more probable occurrences of metacommunication than Group II, indicating that further exploration of the relevance of this message type to group decision-making is warranted. Some of these messages reflected the members' frustration with the process, such as, "We're running out of time and we haven't accomplished anything."

The results are generally in the direction predicted by previous theory and research on cooperation and competition in small task groups. This study adds further information to that body of research by describing some of the characteristics of the communication patterns occurring in such groups. Still more research is needed to fully explicate the cooperative and competitive processes.

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Author's Note: This study was supported in part by a research grant from the Academic Senate of the University of California, Santa Barbara, 1979.

TABLE 1

Instrument A

SUBSCALE	ITEM
Cooperation-Competition	Was your group more cooperative or competitive? Highly Cooperative ___ ___ ___ ___ ___ ___ ___ Highly Competitive
	Did the members of your group work more as a unit or as individuals? Highly United ___ ___ ___ ___ ___ ___ ___ Highly Individual
Satisfaction	How satisfied are you with the model your group created? Highly Satisfied ___ ___ ___ ___ ___ ___ ___ Highly Dissatisfied
	How satisfied are you with the way the group made decisions? Highly Satisfied ___ ___ ___ ___ ___ ___ ___ Highly Dissatisfied
	How satisfied are you with the way your group was controlled? Highly Satisfied ___ ___ ___ ___ ___ ___ ___ Highly Dissatisfied
	Would you like to work with these same people again? Very Much ___ ___ ___ ___ ___ ___ ___ Very Little

TABLE 2

Instrument B - Category System for
Decision-making Communication

1. Proposal, solution or counterproposal.
2. Extension or development of existing proposal.
3. Agreement or support, but no extension (e.g., "I like that").
4. Disagreement, but no counterproposal (e.g., "That's not right").
5. Seeks information or material (usually a question).
6. Gives new information, but is neither a proposal, counter-proposal, nor extension.
7. Summarizes.
8. Metacommunication or focus on the decision-making process.
9. Extraneous or off task.

TABLE 3

Comparison of Category Systems

Ellis & Fisher	Instrument B*
Dimension One	
1 Assertion	6 Gives information
	1 Proposal or counterproposal
2 Request	5 Seeks information
Dimension Two	
1a Simple statement of favor	3 Agreement/Support
1b Substantiated statement of favor	3 Agreement/Support
2a Simple statement of disfavor	4 Disagreement
2b Substantiated statement of disfavor	4 Disagreement
3a Ambiguous fragment	
3b Ambiguous bivalued	
3c Ambiguous matter of fact	
4 Information	6 Gives information
5 Simple agreement	3 Agreement
6 Simple disagreement	4 Disagreement
7 Modification	2 Extension
8 Task irrelevant	9 Extraneous
	7 Summarizes
	8 Metacommunication

*Categories are listed beside comparable categories in the Ellis & Fisher (1975) System.

TABLE 4

ANOVA: Comparison of Groups on Instrument A

Scale	F
Cooperation-Competition	8.99*
Satisfaction	14.07*

*$p < .005$

TABLE 5

Group I: Summary of Matches Above Chance

Criterion: Lag	Proposal	Extension	Disagreement	Gives
1	Prop .200[a]		Dis .158	Gives .182
2	Ext .324		Prop, Gives .211 .158	Seeks .227
3		Dis, Agr .176 .255	Agr .263	Seeks .273
4	Ext, Gives .294 .118		Ext .316	Seeks .227
5	Prop,Extran .242 .121	Ext .275		
6		Agr .255	Meta .263	Agr .318
7	Agr, Dis .226 .097			
8	Agr, Dis .300 .133			
9	Agr, Meta .267 .200		Meta, Gives .263 .158	

[a]Observed probability ($p < .05$).

TABLE 6

Group II: Summary of Matches Above Chance

Criterion: Lag	Proposal	Extension	Disagreement	Gives Information
1	Agr .370 [a]	Ext .379	Prop, Gives .200 .350	Gives .322
2		Ext .348	Agr .400	Gives .378
3	Prop, Ext .217 .239	Ext, Seeks .258 .242	Gives .300	Gives .278
4	Ext, Dis .267 .133		Agr, Dis .450 .150	Gives .400
5		Ext, Prop .242 .182		Gives .311
6	Prop .182	Ext .258	Ext .300	Gives .348
7	Ext .279			Gives .303
8			Agr .350	
9			Seeks .300	Gives .337

[a]Observed probability ($p < .05$).

TABLE 7

95% Confidence Intervals

Match	Confidence Interval	
	Group I	Group II
Proposal	.166 - .087	.142 - .081
Extension	.230 - .138	.195 - .124
Agreement	.206 - .119	.314 - .227
Disagreement	.098 - .039	.069 - .028
Seeks	.194 - .109	.190 - .120
Gives	.111 - .048	.257 - .177
Summarizes	.058 - .014	.012 - .002
Meta	.174 - .093	.033 - .006
Extraneous	.085 - .030	.026 - .003